

## **RAW SEQUENCE LISTING**

**The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.**

Application Serial Number: 09/769,744D  
Source: IFW/16  
Date Processed by STIC: 9/23/05

***ENTERED***

**CRF ERRORS EDITED BY THE SMC SYSTEMS**

**TRANSCRIBED**

**Serial Number:**

**1769.24402**

**CRF Edit Date:**

**9/23/03**

**Edited by:**

**Realigned nucleic acid/amino acid numbers/text in cases where the sequence text "wrapped" to the next line.**

**Corrected the SEQ ID NO. Sequence numbers edited were:**

**\_\_\_\_ Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID NO's edited:**

**✓ Deleted: ✓ invalid beginning/end-of-file text ; \_\_\_\_ page numbers**

**\_\_\_\_ Inserted mandatory headings/numeric identifiers, specifically:**

**\_\_\_\_ Moved responses to same line as heading/numeric identifier, specifically:**

**✓ Other:**

**Deleted alphabetical headings on L1207, L1307, L1407,  
and L1417 lines**



IFW16

**RAW SEQUENCE LISTING**  
**PATENT APPLICATION: US/09/769,744D**

**DATE: 09/23/2005**  
**TIME: 14:58:35**

**Input Set : N:\AMC\769744.txt**  
**Output Set: N:\CRF4\09232005\I769744D.raw**

3 <110> APPLICANT: Microbial Technics Limited  
 4 Le Page, Richard WF  
 5 Wells, Jeremy M  
 6 Hanniffy, Sean B  
 7 Hansbro, Philip M  
 9 <120> TITLE OF INVENTION: Proteins  
 11 <130> FILE REFERENCE: PWC/P21122WO  
 13 <140> CURRENT APPLICATION NUMBER: US/09/769,744D  
 C--> 14 <141> CURRENT FILING DATE: 2001-01-26 *p. 6*  
 16 <150> PRIOR APPLICATION NUMBER: PCT/GB99/02452  
 17 <151> PRIOR FILING DATE: 1999-07-27  
 19 <150> PRIOR APPLICATION NUMBER: GB 9816336.3  
 20 <151> PRIOR FILING DATE: 1998-07-27  
 22 <150> PRIOR APPLICATION NUMBER: US 60/125329  
 23 <151> PRIOR FILING DATE: 1999-03-19  
 25 <160> NUMBER OF SEQ ID NOS: 196  
 27 <170> SOFTWARE: PatentIn Ver. 2.1  
 29 <210> SEQ ID NO: 1  
 30 <211> LENGTH: 1200  
 31 <212> TYPE: DNA  
 32 <213> ORGANISM: Streptococcus pneumoniae  
 34 <400> SEQUENCE: 1  
 35 atgagaaaata tgtgggttgt aatcaaggaa acctatctc gacatgtcga gtcatggagt 60  
 36 ttcttcttta tggtgatttc gccgttcctc ttttaggaa tctctgttagg aattgggcat 120  
 37 ctccaagggtt cttctatggc taaaaataat aaagtggcag tagtgacaac agtgcacatct 180  
 38 gtagcagaag gactgaagaa tgtaaatggt gttaacttcg actataaaaga cgaagcaagt 240  
 39 gccaaagaag caattaaaga agaaaaattt aaaggttatt tgaccattga tcaagaagat 300  
 40 agtgttctaa aggcaattta tcattggcga acatcgctt aaaaatggat taaattttag 360  
 41 gttacaggtt cactcaatga actgcaaaat cagctaattc gttcaactgc ttccctgtct 420  
 42 caagagcagg aaaaacgctt agcgcagaca attcaattca cagaaaagat tgatgaagcc 480  
 43 aaggaaaata aaaagtttat tcaaacaatt gcagcaggtt ctttaggatt ctttctttat 540  
 44 atgattctga ttacctatgc gggtgttaaca gtcaggaag ttgccagtgaaaaggcacc 600  
 45 aaaattatgg aagtctttt ttcttagcata agggcaagtc actatttcta tgcgcggatg 660  
 46 atggctctgt ttcttagt gat ttaacgcattt attggatct atgttgttagg tggctctggct 720  
 47 gccgtttgc tctttaaaga ttgcatttc ttggctcagt ctggattttt ggatcacttg 780  
 48 ggagatgcta tctcaactgaa taccttgctc tttatggat tcaatgtttt catgtacgt 840  
 49 gtcttggcag cttccctagg atctatgggt ttcgtcctg aggactcagg gaaagccttg 900  
 50 tcgccttga tgatggat tatgggtggt tttttggag tgacagctt aggtgcagct 960  
 51 ggtgacaatc tccctctgaa gattggtttct tatattccct ttatggac cttctttatg 1020  
 52 ccgtttcgaa cgattaatga ctatgcgggg ggagcagaag catggatttc acttgctatt 1080  
 53 acagtgattt ttgcgtgggt agcaacagga tttatggac gcatgtatgc tagtctcggtt 1140  
 54 cttcaaacgg atgatttagg gatttggaaa acctttaaac gtgccttatac ttataaaatag 1200  
 57 <210> SEQ ID NO: 2

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/769,744D

DATE: 09/23/2005  
TIME: 14:58:35

Input Set : N:\AMC\769744.txt  
Output Set: N:\CRF4\09232005\I769744D.raw

58 <211> LENGTH: 399  
 59 <212> TYPE: PRT  
 60 <213> ORGANISM: Streptococcus pneumoniae  
 62 <400> SEQUENCE: 2  
 63 Met Arg Asn Met Trp Val Val Ile Lys Glu Thr Tyr Leu Arg His Val  
 64 1 5 10 15  
 66 Glu Ser Trp Ser Phe Phe Met Val Ile Ser Pro Phe Leu Phe Leu  
 67 20 25 30  
 69 Gly Ile Ser Val Gly Ile Gly His Leu Gln Gly Ser Ser Met Ala Lys  
 70 35 40 45  
 72 Asn Asn Lys Val Ala Val Val Thr Thr Val Pro Ser Val Ala Glu Gly  
 73 50 55 60  
 75 Leu Lys Asn Val Asn Gly Val Asn Phe Asp Tyr Lys Asp Glu Ala Ser  
 76 65 70 75 80  
 78 Ala Lys Glu Ala Ile Lys Glu Glu Lys Leu Lys Gly Tyr Leu Thr Ile  
 79 85 90 95  
 81 Asp Gln Glu Asp Ser Val Leu Lys Ala Val Tyr His Gly Glu Thr Ser  
 82 100 105 110  
 84 Leu Glu Asn Gly Ile Lys Phe Glu Val Thr Gly Thr Leu Asn Glu Leu  
 85 115 120 125  
 87 Gln Asn Gln Leu Asn Arg Ser Thr Ala Ser Leu Ser Gln Glu Gln Glu  
 88 130 135 140  
 90 Lys Arg Leu Ala Gln Thr Ile Gln Phe Thr Glu Lys Ile Asp Glu Ala  
 91 145 150 155 160  
 93 Lys Glu Asn Lys Lys Phe Ile Gln Thr Ile Ala Ala Gly Ala Leu Gly  
 94 165 170 175  
 96 Phe Phe Leu Tyr Met Ile Leu Ile Thr Tyr Ala Gly Val Thr Ala Gln  
 97 180 185 190  
 99 Glu Val Ala Ser Glu Lys Gly Thr Lys Ile Met Glu Val Val Phe Ser  
 100 195 200 205  
 102 Ser Ile Arg Ala Ser His Tyr Phe Tyr Ala Arg Met Met Ala Leu Phe  
 103 210 215 220  
 105 Leu Val Ile Leu Thr His Ile Gly Ile Tyr Val Val Gly Gly Leu Ala  
 106 225 230 235 240  
 108 Ala Val Leu Leu Phe Lys Asp Leu Pro Phe Leu Ala Gln Ser Gly Ile  
 109 245 250 255  
 111 Leu Asp His Leu Gly Asp Ala Ile Ser Leu Asn Thr Leu Leu Phe Ile  
 112 260 265 270  
 114 Leu Ile Ser Leu Phe Met Tyr Val Val Leu Ala Ala Phe Leu Gly Ser  
 115 275 280 285  
 117 Met Val Ser Arg Pro Glu Asp Ser Gly Lys Ala Leu Ser Pro Leu Met  
 118 290 295 300  
 120 Ile Leu Ile Met Gly Gly Phe Phe Gly Val Thr Ala Leu Gly Ala Ala  
 121 305 310 315 320  
 123 Gly Asp Asn Leu Leu Leu Lys Ile Gly Ser Tyr Ile Pro Phe Ile Ser  
 124 325 330 335  
 126 Thr Phe Phe Met Pro Phe Arg Thr Ile Asn Asp Tyr Ala Gly Gly Ala  
 127 340 345 350  
 129 Glu Ala Trp Ile Ser Leu Ala Ile Thr Val Ile Phe Ala Val Val Ala

**RAW SEQUENCE LISTING**  
**PATENT APPLICATION: US/09/769,744D**

**DATE: 09/23/2005**  
**TIME: 14:58:35**

**Input Set : N:\AMC\769744.txt**  
**Output Set: N:\CRF4\09232005\I769744D.raw**

130	355	360	365
132	Thr Gly Phe Ile Gly Arg Met Tyr Ala Ser Leu Val Leu Gln Thr Asp		
133	370	375	380
135	Asp Leu Gly Ile Trp Lys Thr Phe Lys Arg Ala Leu Ser Tyr Lys		
136	385	390	395
140	<210> SEQ ID NO: 3		
141	<211> LENGTH: 1125		
142	<212> TYPE: DNA		
143	<213> ORGANISM: Streptococcus pneumoniae		
145	<400> SEQUENCE: 3		
146	cctggaaaag tcttggaaaat tatgtatgaa tggttggagg aaaaattcag gagagtagta	60	
147	gtgactcaaa atgttggaaaag tcttctcgta tccattgtaa tcagtgcata caatgaagaa	120	
148	aaatatctgc ctggctaat tgaagactta aaaaatcaa cctatccaa agaggatatt	180	
149	gaaattctat ttataaatgc tatgtccaca gatgggacca cagctatcat tcagcaattt	240	
150	ataaaaggaag atacagagtt taactcaatt agattgtata acaatccaa gaaaatcaa	300	
151	gctagtgggtt ttaacctggg agttaaacat tctgttaggg accttattt aaaaattgtat	360	
152	gctcattcaa aagttactga gactttgtat atgaacaatg tggctattat tcaacaaggt	420	
153	gaatttgtct gtggggggcc tagaccgacg attgtcgaag gaaaaggaaa atgggcagag	480	
154	accttgcatc ttgttggagga aaatatgttt ggcagtagca ttgccaatta tcgaaatagt	540	
155	tctgaggata gatatgtttc ttctattttt catggatgt ataaacgaga ggtttccag	600	
156	aagggtgggt tagtaaatga gcaacttggc cgaactgaag ataatgatat tcattataga	660	
157	attcgagaat atggttataa aatccgctat agcccaagta ttctatctta tcagtatatt	720	
158	cgaccaacat tcaagaaaat gctgcatcaa aagtattcaa atggttgtg gattggcttg	780	
159	acaagtcatg ttcaagttaa gtgttatca ttatttcact atgttccttg ttatgtt	840	
160	ttgagtcttg tgtttagtct agcattgtta ccgatcacat tcgtattcat aactttacta	900	
161	ttaggtgcctt attttctact tttgtcatat ctcacttgc tgactttattt aaaaacataaa	960	
162	aatggatttc taattgtat gcccatttattt ttatgttcca ttcaacttgc ttatggcctt	1020	
163	gggacgattt taggtttaat tagaggattt aaatggaaaga aggagtacaa gagaacaata	1080	
164	atttatttgg ataaaataaag ccaaataaat caaaatatgc tataa	1125	
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168	<211> LENGTH: 374		
169	<212> TYPE: PRT		
170	<213> ORGANISM: Streptococcus pneumoniae		
172	<400> SEQUENCE: 4		
173	Pro Gly Lys Val Leu Lys Ile Met Ile Glu Trp Trp Lys Glu Lys Phe		
174	1 5 . 10 15		
176	Arg Arg Val Val Val Thr Gln Asn Val Glu Ser Leu Leu Val Ser Ile		
177	20 25 30		
179	Val Ile Ser Ala Tyr Asn Glu Glu Lys Tyr Leu Pro Gly Leu Ile Glu		
180	35 40 45		
182	Asp Leu Lys Asn Gln Thr Tyr Pro Lys Glu Asp Ile Glu Ile Leu Phe		
183	50 55 60		
185	Ile Asn Ala Met Ser Thr Asp Gly Thr Thr Ala Ile Ile Gln Gln Phe		
186	65 70 75 80		
188	Ile Lys Glu Asp Thr Glu Phe Asn Ser Ile Arg Leu Tyr Asn Asn Pro		
189	85 90 95		
191	Lys Lys Asn Gln Ala Ser Gly Phe Asn Leu Gly Val Lys His Ser Val		
192	100 105 110		
194	Gly Asp Leu Ile Leu Lys Ile Asp Ala His Ser Lys Val Thr Glu Thr		

RAW SEQUENCE LISTING  
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DATE: 09/23/2005  
TIME: 14:58:35

Input Set : N:\AMC\769744.txt  
Output Set: N:\CRF4\09232005\I769744D.raw

195	115	120	125	
197	Phe Val Met Asn Asn Val Ala Ile Ile Gln Gln Gly Glu Phe Val Cys			
198	130	135	140	
200	Gly Gly Pro Arg Pro Thr Ile Val Glu Gly Lys Gly Lys Trp Ala Glu			
201	145	150	155	160
203	Thr Leu His Leu Val Glu Glu Asn Met Phe Gly Ser Ser Ile Ala Asn			
204	165	170	175	
206	Tyr Arg Asn Ser Ser Glu Asp Arg Tyr Val Ser Ser Ile Phe His Gly			
207	180	185	190	
209	Met Tyr Lys Arg Glu Val Phe Gln Lys Val Gly Leu Val Asn Glu Gln			
210	195	200	205	
212	Leu Gly Arg Thr Glu Asp Asn Asp Ile His Tyr Arg Ile Arg Glu Tyr			
213	210	215	220	
215	Gly Tyr Lys Ile Arg Tyr Ser Pro Ser Ile Leu Ser Tyr Gln Tyr Ile			
216	225	230	235	240
218	Arg Pro Thr Phe Lys Lys Met Leu His Gln Lys Tyr Ser Asn Gly Leu			
219	245	250	255	
221	Trp Ile Gly Leu Thr Ser His Val Gln Phe Lys Cys Leu Ser Leu Phe			
222	260	265	270	
224	His Tyr Val Pro Cys Leu Phe Val Leu Ser Leu Val Phe Ser Leu Ala			
225	275	280	285	
227	Leu Leu Pro Ile Thr Phe Val Phe Ile Thr Leu Leu Leu Gly Ala Tyr			
228	290	295	300	
230	Phe Leu Leu Leu Ser Leu Leu Thr Leu Leu Thr Leu Leu Lys His Lys			
231	305	310	315	320
233	Asn Gly Phe Leu Ile Val Met Pro Phe Ile Leu Phe Ser Ile His Phe			
234	325	330	335	
236	Ala Tyr Gly Leu Gly Thr Ile Val Gly Leu Ile Arg Gly Phe Lys Trp			
237	340	345	350	
239	Lys Lys Glu Tyr Lys Arg Thr Ile Ile Tyr Leu Asp Lys Ile Ser Gln			
240	355	360	365	
242	Ile Asn Gln Asn Met Leu			
243	370			
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248	<211> LENGTH: 696			
249	<212> TYPE: DNA			
250	<213> ORGANISM: Streptococcus pneumoniae			
252	<400> SEQUENCE: 5			
253	atgatgaaag aacaaaatac gatagaaaatc gatgtattc aattagttaa aagcttgtgg 60			
254	aaacgcgaagc taatgatttt aatagtggca cttgtgacag gtgcgggggc ttttgcatat 120			
255	agcacttta ttgttaagcc agaatatacg agtaccacgc gaatttacgt agtgaatcgc 180			
256	aatcaaggag acaagccggg gttgacaaat caggattgc aggccaggaac ttatctggta 240			
257	aaagactacc gtgagattat ccttcgcag gatgtttgg aggaagtgt ttctgattt 300			
258	aaactagatt tgacccaaaa aggtttggct aataaaaatta aagtgacagt accagttgat 360			
259	acccgtatttgc tctctatttc agttaatgtat cgagttcctg aagaggcaag ccgtatcgct 420			
260	aactctttga gagaagttagc tgctcaaaaa attatcgat ttactcggtt ttctgacgtg 480			
261	acaacactgg aggaggcaag gccggcgata tccccgtctt cgccaaatat taaacgcaat 540			
262	acactaatttgc gtttttggc aggggtgatt ggaacttagt ttatagttct tcattttgaa 600			
263	cttttgata ctcgtgtgaa acgtccggaa gatatcgaaa atacattgca gatgacactt 660			

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/769,744D

DATE: 09/23/2005  
TIME: 14:58:35

Input Set : N:\AMC\769744.txt  
Output Set: N:\CRF4\09232005\I769744D.raw

264 ttgggagttg tgccaaactt gggtaagtg aaatag 696  
 267 <210> SEQ ID NO: 6  
 268 <211> LENGTH: 231  
 269 <212> TYPE: PRT  
 270 <213> ORGANISM: Streptococcus pneumoniae  
 272 <400> SEQUENCE: 6  
 273 Met Met Lys Glu Gln Asn Thr Ile Glu Ile Asp Val Phe Gln Leu Val  
 274 1 5 10 15  
 276 Lys Ser Leu Trp Lys Arg Lys Leu Met Ile Leu Ile Val Ala Leu Val  
 277 20 25 30  
 279 Thr Gly Ala Gly Ala Phe Ala Tyr Ser Thr Phe Ile Val Lys Pro Glu  
 280 35 40 45  
 282 Tyr Thr Ser Thr Thr Arg Ile Tyr Val Val Asn Arg Asn Gln Gly Asp  
 283 50 55 60  
 285 Lys Pro Gly Leu Thr Asn Gln Asp Leu Gln Ala Gly Thr Tyr Leu Val  
 286 65 70 75 80  
 288 Lys Asp Tyr Arg Glu Ile Ile Leu Ser Gln Asp Val Leu Glu Glu Val  
 289 85 90 95  
 291 Val Ser Asp Leu Lys Leu Asp Leu Thr Pro Lys Gly Leu Ala Asn Lys  
 292 100 105 110  
 294 Ile Lys Val Thr Val Pro Val Asp Thr Arg Ile Val Ser Ile Ser Val  
 295 115 120 125  
 297 Asn Asp Arg Val Pro Glu Glu Ala Ser Arg Ile Ala Asn Ser Leu Arg  
 298 130 135 140  
 300 Glu Val Ala Ala Gln Lys Ile Ile Ser Ile Thr Arg Val Ser Asp Val  
 301 145 150 155 160  
 303 Thr Thr Leu Glu Glu Ala Arg Pro Ala Ile Ser Pro Ser Ser Pro Asn  
 304 165 170 175  
 306 Ile Lys Arg Asn Thr Leu Ile Gly Phe Leu Ala Gly Val Ile Gly Thr  
 307 180 185 190  
 309 Ser Val Ile Val Leu His Leu Glu Leu Leu Asp Thr Arg Val Lys Arg  
 310 195 200 205  
 312 Pro Glu Asp Ile Glu Asn Thr Leu Gln Met Thr Leu Leu Gly Val Val  
 313 210 215 220  
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 316 225 230  
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 321 <211> LENGTH: 555  
 322 <212> TYPE: DNA  
 323 <213> ORGANISM: Streptococcus pneumoniae  
 325 <400> SEQUENCE: 7  
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 327 gtagatgtct tgcgtcgagc caatatcaca tgtgatatgg ttggtttga agagcaagta 120  
 328 acgggttcgc atgcaatcca agtaagagca gatcatgtct ttgatggaga tttatcagac 180  
 329 tatgatatga ttgttctcc tggaggatag cctggttctg cacatttacg tgataatcag 240  
 330 accttgattc aagaattgca aagcttcgag caagaaggga agaaaactagc agccatttgt 300  
 331 gccggcaccaa ttgccctcaa tcaagcagag atattgaaaa ataagcgata cacttgttat 360  
 332 gacggcgttc aagagcaaat cttgtatgtt cactacgtca aggaaacagt agtggtagat 420  
 333 ggtcagttga caaccagtcg gggtccttca acagcccttg cctttgccta cgagttggtg 480

RAW SEQUENCE LISTING ERROR SUMMARY                    DATE: 09/23/2005  
PATENT APPLICATION: US/09/769,744D                    TIME: 14:58:36

Input Set : N:\AMC\769744.txt  
Output Set: N:\CRF4\09232005\I769744D.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:182; Xaa Pos. 3

**VERIFICATION SUMMARY**

PATENT APPLICATION: US/09/769,744D

DATE: 09/23/2005

TIME: 14:58:36

Input Set : N:\AMC\769744.txt

Output Set: N:\CRF4\09232005\I769744D.raw

L:14 M:271 C: Current Filing Date differs, Replaced Current Filing Date

L:9148 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:182 after pos.:0

## **Raw Sequence Listing before editing (for reference only)**



IFW16

**RAW SEQUENCE LISTING**  
**PATENT APPLICATION: US/09/769,744D**

**DATE: 09/23/2005**  
**TIME: 14:55:05**

**Input Set : N:\AMC\769744.txt**  
**Output Set: N:\CRF4\09232005\I769744D.raw**

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3 <110> APPLICANT: Microbial Technics Limited
4     Le Page, Richard WF
5     Wells, Jeremy M
6     Hanniffy, Sean B
7     Hansbro, Philip M
9 <120> TITLE OF INVENTION: Proteins
11 <130> FILE REFERENCE: PWC/P21122WO
13 <140> CURRENT APPLICATION NUMBER: US/09/769,744D
C--> 14 <141> CURRENT FILING DATE: 2001-01-26
16 <150> PRIOR APPLICATION NUMBER: PCT/GB99/02452
17 <151> PRIOR FILING DATE: 1999-07-27
19 <150> PRIOR APPLICATION NUMBER: GB 9816336.3
20 <151> PRIOR FILING DATE: 1998-07-27
22 <150> PRIOR APPLICATION NUMBER: US 60/125329
23 <151> PRIOR FILING DATE: 1999-03-19
25 <160> NUMBER OF SEQ ID NOS: 196
27 <170> SOFTWARE: PatentIn Ver. 2.1

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*Does Not Comply  
Corrected Diskette Needed*

*all p.2*

**ERRORED SEQUENCES**

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9317 <210> SEQ ID NO: 196
9318 <211> LENGTH: 11
9319 <212> TYPE: PRT
9320 <213> ORGANISM: Streptococcus pneumoniae
9322 <400> SEQUENCE: 196
9323 Gln Lys Ile Thr Met Ile Thr Phe Thr Phe Gln
9324   1           5           10
E--> 9330 163

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09/769,744

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SEQUENCE LISTING

<110> Microbial Technics Limited  
Le Page, Richard WF  
Wells, Jeremy M  
Hanniffy, Sean B  
Hansbro, Philip M

<120> TITLE OF INVENTION Proteins

<130> FILE REFERENCE PWC/P21122WO

<140> CURRENT APPLICATION NUMBER: US/09/769,744

<141> CURRENT FILING DATE: 2001-02-2662785

delete alphabetical headers

**VERIFICATION SUMMARY**

PATENT APPLICATION: US/09/769,744D

DATE: 09/23/2005

TIME: 14:55:07

Input Set : N:\AMC\769744.txt

Output Set: N:\CRF4\09232005\I769744D.raw

L:14 M:271 C: Current Filing Date differs, Replaced Current Filing Date

L:9148 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:182 after pos.:0

L:9330 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:196